

REMARKS

Claims 14 and 38-40 are pending in this application. Claim 14 is rejected and claims 38-40, which depend from claim 14, are new.

In the following, the Examiner's comments are included in bold, indented type, followed by the Applicants' remarks:

Claim Rejections – 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Regarding claims 7, 9-11, 13-14, these claims recite a plurality of storage facilities and row ID, but fails to recite a tangible result, a requirement for compliance with the provisions of 35 U.S.C. § 101 in view of the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, published on 26 October 2005, which can be found at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines10120051026.pdf>, particularly with respect to ANNEX IV Computer-Related Nonstatutory Subject Matter, beginning on page 50.

For a result to be tangible, it must be more than just a thought or a computation; it must have real-world value rather than an abstract result.

Claims 7, 9-11, and 13 have been cancelled. Claim 14 recites a partitioned database system in which data in the form of table rows is distributed across a plurality of storage facilities. As noted in the Interim Guidelines on page 50, *In re Warmerdam* determined that a claim to a computer storing a particular data structure was statutory, while a claim directed only to that data structure was not.¹ In claim 14, the data structure is not claimed separately from the database system. Instead, the database system is claimed with the data stored in a particular manner therein. The storage of the data leads to the useful, concrete, and tangible result that multiple storage facilities can be used to store the rows of a particular database system. Applicants respectfully assert that claims 14 and 38-40 comply with 35 U.S.C. § 101.

¹ 33 F.3d 1354, 1358, 31 USPQ2d 1754, 1757 (Fed. Cir. 1994).

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 9-11, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kruglikov et al. (US 6105026), and further in view of Tow et al. (US 5860070).

These claims have been cancelled without prejudice to presentation in a continuing application.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kruglikov et al. (US 6105026), Tow et al. (US 5860070), and further in view of Fujiwara et al. (US5515531).

As per independent claim 14, Kruglikov et al. teach:

a partition database system comprising: a plurality of storage facilities, each storage facility including data representing a plurality of table rows – fig. 1, elements 110-130 (partitions/segments of table rows of a table); col. 1, lines 1-64 (. . . the different partitions may reside on physically separate disk drives in the database system - col. 1, lines 62-64). Thus, each disk drive can store at least a partition or table rows. Kruglikov et al. do not teach a row ID which comprises a first and a second value, but based on the definitions of these row ID values, Kruglikov et al. teach

- the first value based on ONE or more columns of the table, and is predominate in determining the order of the rows in the storage facilities —fig. 1, Hiredate.**
- the second value based on ONE or more columns of the table, and determines the order of those rows with identical first values – fig. 1, columns LAST NAME and FIRST NAME, or ID# would meet the definition of the second value, if HIRE DATE values are the same in a partition, names or ID# values can be used to further determine the orders of those rows with identical HIRE DATE values.**

Tow et al. teach “method and apparatus of enforcing uniqueness of a key value for a row a data table” – the title. Tow et al. (USP 5860070) teach: “The term “value” is used to refer to the contents of row-column, whether numerals, characters, symbols, dates, raw byte strings, etc., or any combination thereof” - col. 2, lines 38-40; “In some databases, multiple columns are used as keys. In table 210 of FIG. 2, for example, it might be possible for the CUSTOMER NUMBER value to be the same for two different rows, but for the combination of the CUSTOMER number value and the CUSTOMER NAME value to be unique in each row. This is illustrated more generally by table 410 of FIG. 4, in which a key value in any given row of the table spans more than one column.” – col. 2, lines 32-56.

Tow et al. also teach: “row ID comprises a first value based on one or more columns of the table and a second value based on one or more columns of the table” – fig. 4, table 410 with a unique key spans all N columns thus, it meets the limitation: “a first value based on one or more columns of a table and a second value based on one or more columns of the table”; col. 4, lines 57-62; col. 5, lines 10-16. Tow et al. also teach “the proposed key value is mapped into a target value (in a set of target values). The set of target values may be a set of hash values. Hasing and hash values are well known concepts in the art” – col. 4, last paragraph. Tow et al. teach applying a hash function to a value in at least one specified column – col. 3, lines 30-59, col. 4, last paragraph to col. 5, line 28; col. 6, lines 17-27; col. 7, lines 18-57. However, both Kruglikov et al. and Tow et al. do not explicitly suggest do not teach the table rows are distributed among the plurality of storage facilities based on the second value.

Fujiwara et al. teach database partitioning using hash table or function with primary partition key and secondary partition key – col. 6, lines 20-49; when the hash function is applied to partition a database, table rows would be distributed among the partitions based on the hash values or partitioning key(s) – col. 7, lines 10-67; col. 9, lines 47 to col. 10, line 26. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Kruglikov et al.’s teaching with Tow et al.’s teaching of multi-column key, and to incorporate hash function(s)/table(s) to column(s)’ value(s) would provide several advantages – Tow et al., col. 7, lines 28-57.

The Examiner admits that neither Kruglikov nor Tow teaches Applicant teaches or suggests that rows should be distributed among a plurality of storage facilities based on a second value within the key that is used to order rows from a particular table on a particular storage facility. In fact, Kruglikov teaches away from this approach. As noted by the Examiner, the only point in Kruglikov that discusses use of multiple storage facilities suggests allocating a partition to each storage facility. See Office Action at 10-11 (“the different partitions may reside

on physically separate disk drives in the database system - col. 1, lines 62-64"). If the second value identified by the Examiner, columns LAST NAME and FIRST NAME, are used to distribute the rows, then rows with the same Hiredate could end up on separate facilities. This would be contrary to the teaching of Kruglikov. Even if Fujiwara taught the idea of distributing rows among a plurality of storage facilities based on a second value within the key that is used to order rows from a particular table on a particular storage facility, it would be improper to combine this idea with Kruglikov. Prior art cannot be combined in a manner that defeats its purpose. *See In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1986).

In addition, Fujiwara does not teach or suggest that rows should be distributed among a plurality of storage facilities based on a second value within the key that is used to order rows from a particular table on a particular storage facility. While the Examiner identifies primary and secondary partition keys, there is no teaching that those two keys together function as values used to order the rows in particular storage facilities or that the second value is used to distribute the rows among the storage facilities. In the discussion of Fujiwara, the Examiner does not assert that those features are present. The Examiner just says that Fujiwara distributes rows among partitions. Fujiwara further indicates that it does not distribute based on a second value because the system it discloses is still able to move rows between facilities without regard to the second partition key. *See Col. 7, Lines 56-63*. As a result, claim 14 would not have been obvious because there is no prima facie case of obviousness where the asserted combination lacks at least one element. MPEP 2143; *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1443 (Fed. Cir. 1991). Claims 38-40 also would not have been obvious because they depend from claim 14.

SUMMARY

Applicants contend that the claims are in condition for allowance, which action is requested. Applicants do not believe that any fees are required for this response. Should any additional fees be required, Applicant requests that the fees be debited from NCR Deposit Account Number **14-0225** Order Number **069092.0108**.

Respectfully submitted,



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